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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/789,983 | 03/02/2004 | Toshio Morita | Q79556 | 9662 |

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| EXAMINER | |
|---|---|
| STADLER, REBECCA M | |
| ART UNIT | PAPER NUMBER |
| 1754 | |

DATE MAILED: 09/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/789,983 | MORITA ET AL. | |
| | Examiner | Art Unit | |
| | Rebecca M. Stadler | 1754 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *21 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-4 and 7-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 7-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

### *Response to Arguments*

Applicant's arguments, see Remarks, filed 7/21/2006, with respect to the 102 over the Murata reference have been fully considered and are persuasive. The 102 rejection of claims 1, 3, 6 and 7 over Murata has been withdrawn.

Applicant's arguments filed 7/21/2006 have been fully considered but they are not persuasive.

As to applicant's request to acknowledge applicant's claim for foreign priority, the Examiner did not find any foreign priority documents in this case. Therefore, the foreign priority will not be acknowledged.

As to applicant's request that the Examiner initial documents cited in the Information Disclosure Statement, applicant has not provided these documents to the Examiner. Therefore, they were crossed out on the Information Disclosure Statement.

As to applicant's argument that the manner of adding the catalyst particles is important, applicant is invited to submit evidence of unexpected results. Applicant should compare their own table to the table of JP '921 to show that the order is important and that it produces different results.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP No. Sho 59[1984]-76921 to Komatsu. For purposes of this rejection, the English translation will be used.

With respect to claim 1, Komatsu discloses a method for manufacturing carbon fibers (see page 3, line 16), by thermally decomposing a carbon material (page 3, lines 22-23 and line 29) in the presence of a catalyst dispersed in a solution that is obtained by adding a plasticizer to an organic solvent (see page 3, lines 16-17). The catalysts are fine Fe particles having an average particle size of 100 Å (see page 4, Application Example 1). Application Example 1 (page 4) in Komatsu discloses spraying the catalyst and solvent into the reactor before adding the carbon and protective gas. It would have been obvious to add the catalyst, solvent, carbon source and protective gas all at the same time because the selection of any order of mixing ingredients is prima facie evidence of obviousness. See, e.g., In re Gibson, 39 F.2d 975, 5 U.S.P.Q. 230 (CCPA 1930). Further, this combination would simplify the process. As to the limitation of the center portion and the peripheral portion having different structures, this limitation would inherently result under the Komatsu process.

Regarding claim 7, Komatsu suggests using an iron oxide (see page 3, line 14). Therefore it would have been obvious to one of ordinary skill in the art to select $Fe_3O_4$ as the iron oxide.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Komatsu, as applied to claim 1, and in further view of USP 6,759,693 to Vogeli.

As to claim 2, Komatsu does not disclose the mass percent of the catalyst. However, Vogeli '693 discloses that the catalyst concentration is a process parameter that can be adjusted to control growth of the carbon nanotube (see column 4, lines 27-31). It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the catalyst concentration, since it has been held that discovering an optimum value or a result effective variable involved only routine skill in the art. See, e.g., In re Boesch, 617 F.2nd 272, 205 U.S.P.Q. 215 (CCPA 1980). The artisan would have been motivated to adjust the catalyst concentration by the reasoned explanation that doing so controls the type and extent of nanotube growth.

Claims 2-4, 8 and 9, are rejected under 35 U.S.C. 103(a) as being unpatentable over Komatsu, as applied to claims 1 and 7, and in further view of JP No. Hei 2[1990]-6617 to Murata.

Komatsu does not disclose an anionic, nor a cationic surfactant. However, Murata discloses cationic and anionic surfactants (see page 4, lines 24-35). It would have been obvious to one of ordinary skill in the art to use a cationic or an anionic surfactant, as suggested by Murata, because Murata teaches that these surfactants are beneficial for retaining good dispersibility for a long time (see Murata page 4, line 35).

Komatsu also does not disclose a sulfur promoter compound. Murata discloses a range of catalytic particles of 0.05-5.0 wt% and surfactant 0.10-50 wt% (the surfactant can be a sulfur compound, see page 4, lines 24-35) (see page 5, lines 5-6). When the prior art teaches

overlapping ranges, the claim is prima facie obvious. See, e.g., In re Malagari, 499 F. 2d 1297, 182 U.S.P.Q. 549 (CCPA 1974). It would have been obvious to one of ordinary skill in the art at the time of this invention to use the promoter of Murata in the Komatsu process in order to provide for the improved dispersibility as discussed above.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rebecca M. Stadler whose telephone number is 571-272-5956.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rebecca M. Stadler

STUART L. HENDRICKSON
PRIMARY EXAMINER